

LEAN START CANVAS: development and application of a new integrated agile approach for Business Model

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Abstract: The Business Model is the set of organizational and strategic solutions through which a company acquires a competitive advantage; it describes the logic for its “value” proposition. In fact, the success or failure of any business, depends on the company's ability to create value for its customers, in the shortest time. In launching a new product or service, the first activity should be to create your own business model. In this way, it will be possible to decide with accuracy what to be done, how it should be done and for which specific stakeholders the company wants to create value. In literature, a key concept of each Business Model is the value perceived by the customer, given by the difference between benefits and costs. Therefore, Business Model is the way in which the company organizes itself to create and offer the maximum possible value for its customers. In the paper, starting from Osterwalder's Business Model Canvas and Eric Ries' Lean Startup, a new integrated "agile" approach is proposed, strongly oriented towards the value proposition for stakeholders and the economic return of business investment. Then, the proposed model was applied to the case study of a small gasification system for its commercialization and industrialization, in order to validate the proposed approach and verify its generality.

Keywords: Value Proposition, RoI, Gasification System, BPR

I. INTRODUCTION

The success or failure of any business strongly depends on the company's ability to create the value for its customers, in the shortest possible time.

The first activity to be carried out to change and improve a company, to launch a new product / service or to start a high-value startup, is to create your business model. In this way, it will be possible to decide with precision what needs to be satisfied and how it should be satisfied to create value for specific stakeholders.

In the present work, starting from the literature analysis of the most common business models, in particular Osterwalder's Business Model Canvas, and Rise's Lean Startup, a new approach is proposed more focused on the value proposition for customers and investors.

The criticality is the trade-off between the analysis depth and the decision velocity. The new Business Model

suggests the path to follow and the core aspects to focus on.

In the second part of the work, the proposed approach, called *Lean Start Canvas*, is applied to a real case study.

It was applied to a small gasification system for its industrialization and commercialization.

In the third part, final considerations and conclusions are presented.

II. LITERATURE REVIEW

The Business Model is the set of organizational and strategic solutions through which the company acquires a competitive advantage. The Business Model describes the logic with which an organization converts, distributes and captures value [1].

The expression "to create value" is closely related to the relationship between a company and its customers. A

company creates value for its customers when it is able to support them to:

- perform an important task;
- satisfy a certain desire;
- solve a specific problem.

Paul Timmers, Director of the Digital Society, Trust & Security Directorate in the European Commission Communications Networks, Content and Technologies Directorate General (DG CONNECT), was the first to define the business model as an architecture for the product, service and information flows, which includes a description of the various economic actors and their roles; a description of the potential benefits and possible sources of income for the various players involved in the business [2].

We can find other definitions for Business Model: according to Linder and Cantrell of the Institute for Strategic Change, the business model is the core logic of a company to create value [3].

Weill and Vitale, professors at the MIT Sloan School of Management, published the following statement:

the business model is a description of the roles and relationships between a company's customers, partners and suppliers; it identifies the main information and monetary flows as well as the main benefits for all participants [4].

According to Amit and Zott, it is possible to connect the concept of marketing to the concept of Business model for companies, considering the business model an architectural configuration for identifying opportunities to create value [5].

Morris, Schindehutte and Allen, professors and researchers at Syracuse University, Miami University and the University of Central Florida, used an analysis of the previous literature to propose their own definition. Thirty definitions were analysed in their research, leading them to identify three different categories, relating to economic, operational and strategic levels [6]. For each of the three levels, the authors propose some key questions that a business model should answer:

1. How does the company create value?
2. Whom does the company create value for?
3. What is the internal source for the company advantage?
4. What is the company's positioning in the market?
5. How does the company make money?

Sometimes, it is necessary to change the company process for improving the existing business, Business Process Reengineering [7;8]. BPR looks at why, what, when, how and where the organization does the things;

in that case we speak of Business Model Reengineering, commonly known as Reverse Innovation [9].

A further contribution is proposed by Doz and Kosonen [10] who distinguish between objective definition and subjective one. In the first case, Business Model is a set of structured and interdependent operational relationships between the company and its customers, suppliers, partners and other stakeholders, and between its internal units and the various departments; in the second case the business model also functions as a subjective representation of these mechanisms, considering the relation between the company and its environment.

The key concept common to all Business Model definitions, is the “value”, given by the difference between benefits and costs.

In the following, the two most important frameworks are analyzed: Alexander Osterwalder’s Business Model Canvas, and Eric Rise’s Lean Startup. Starting from the analysis and comparison between the above two models, the authors developed a new integrated approach, called Lean Start Canvas - LSC.

A. Business Model Canvas

Alexander Osterwalder’s Business Model Canvas is a strategic tool that uses visual language to create and develop innovative business models. It allows to represent the way in which a company creates, distributes and captures value [11].

Business Model Canvas is a powerful framework based on nine building blocks (Figure 1), that are nine different company points of view.

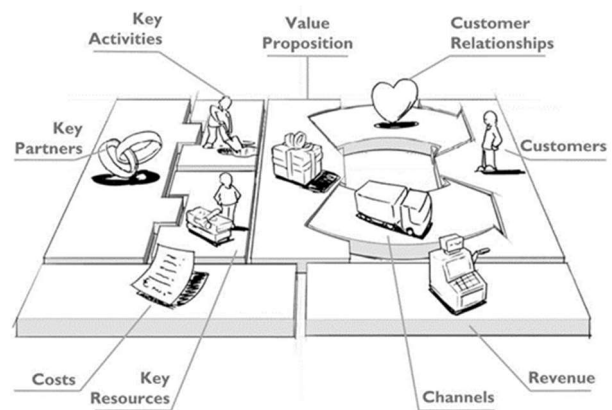


Fig. 1. Business Model Canvas structure

The main result is a printed template, filled by a team, answering some questions (Figure 2).

Key Partners Who are the partners that the business model relies on? Suppliers, distributors, complementors, channels, allies...	Key Activities What key activities must the business model perform to make its value proposition work? Production, problem solving, logistics...	Value Propositions What value does the business model deliver to the customer? New products, better performance, lower costs, convenience, access, customisation...	Customer Relationships How does the business model establish and maintain relationships with each customer segment? Personal assistance, self-service, communities, co-creation...	Customer Segments Who are the target customers that the business model aims to reach? Mass, niche, segmented...
	Key Resources What key resources does the business model require to make its value proposition work? Physical, intellectual, human, financial...		Channels How does the business model reach its customer segments? Direct, indirect, partners...	
Cost Structure What are the most important costs incurred by the business model? Fixed costs, variable costs...		Revenue Streams How does the business model generate revenue? Sales, subscriptions, advertising...		

Fig. 2. Business Model Canvas template

The most important advantages of Business Model Canvas are:

- A problem solving tool based on creativity and flexibility;
- Simplicity of use based on visual thinking, allowing investigating the problem main aspects;
- Creation of a universal language that can be understood by everyone;
- Possibility of creating alternative businesses based on different hypotheses.

Many variations of the model were proposed. For example, Joyce and Paquin [12] proposed “The triple layered business model canvas”, that extends the original business model canvas by adding two layers: an environmental layer based on a lifecycle perspective and a social layer based on a stakeholder perspective.

B. Lean Startup

Lean Startup takes its name from Toyota’s lean manufacturing system implemented by Taiichi Ohno and Shigeo Shingo. The Lean Startup methodology is a way of approaching the launch of an activity or product that is based on three aspects: validated learning, scientific experimentation and product launch. The concept was developed by Eric Ries in 2008 [13], starting from Customer Development, developed by Steve Blank in the 1990s [14]. The companies that apply Ries’ methodology, especially innovative Startups, can create products and services to meet customer demand without initial financing or large investments [15].

At the beginning, the method was created and adopted by technology companies, but over time also in other sectors, being applicable to any situation, group or company that needs to introduce new products or services into the market. It is based on the approach of “get out of the buildings”, against “big design up front”. It requires constant stakeholder’s feedbacks, with an agile

development approach, based on “minimum viable product (MVP)” e “pivoting” concepts.

Lean Startup is characterized by a sequence of three phases (Figure 3):

- Build;
- Measure;
- Learn.

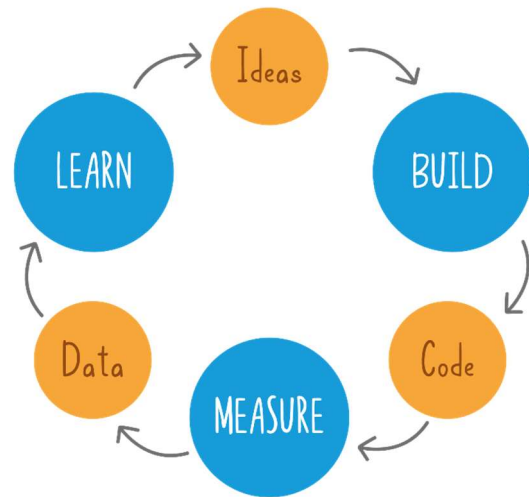


Fig. 3. Lean Startup cycle

1. BUILD: at the beginning, to turn the *idea* into a *code*, it is necessary to create Minimum Viable Product — MVP, with basics characteristics for starting to collect data from the market;
2. MEASURE: then, it is necessary to measure and analyze the collected *data*;
3. LEARN: at this stage, there are two possibilities: Pivot or Persevere. Pivot means you change direction either partially or fully. Persevere means you carry on what is there and move on to the next improved cycle.

The method has the following advantages:

- Drastic reduction of time and costs, needed for developing the project;
- Greater innovation, based on objective data;
- Greater probability of success, without the risk of investing a lot of capital.

C. Lean Canvas

Ash Maurya proposed an integrated business model: Lean Canvas [16]; it is a one-page business plan template, adapted from Alexander Osterwalder's

XXVII Summer School “Francesco Turco” – «Unconventional Plants»

Business Model Canvas and optimized for Lean Startups (Figure 4).

The main positive characteristics are:

- Fast: compared to writing a traditional business plan;
- Portable: much easier to share with others;
- Concise: to distill the essence of your idea;
- Effective: to document and communicate your progress.



Fig. 4. Lean Canvas template

III. LEAN START CANVAS - LSC

The different aspects of the three previous Business Models were compared in Table I.

TABLE I
BUSINESS MODELS COMPARISON

Business Model Canvas (Alexander Osterwalder)	Lean Startup (Eric Rise)	Lean Canvas (Ash Maurya)	Lean Start Canvas (New proposal)
Key Partners		Problem	
Key Activities		Solution	
Key Resources		Key Metrics	
Customer Relationships		Unfair Advantage	
Customer Segments	Customer Segments	Customer Segments	Customers Value Proposition
Channels		Channels	

Cost Structure	Cost Structure	Cost Structure	Cost&Revenue Analysis
Revenue Streams	Revenue Streams	Revenue Streams	Competitors Analysis
Value Proposition	Unique Value Proposition	Unique Value Proposition	Investors Value Proposition

It is possible to highlight a common core for the analysed methods:

- Customer Segments;
- Cost structure;
- Revenue streams;
- (Unique) Value Proposition.

Starting from the above comparison and consideration, a new Business Model has been developed, characterized by two perspectives and two levels (Table II), called Lean Start Canvas - LSC.

TABLE II
LEAN START CANVAS - LSC

<i>Perspectives Levels</i>	Main Stakeholders	Internal & External ANALYSIS
	VALUE PROPOSITION	
OPERATIVE	Customers Value Proposition	Cost&Revenue Analysis
STRATEGIC	Investors Value Proposition	Competitors Analysis

The two perspectives are the two principal activities:

- Value proposition for Customers and Investors;
- Analysis of Internal and External aspects, economic and technical.

Instead the two levels are the two points of view:

- Operative;
- Strategic.

Summarizing, the goal of the proposed business model is to grab the investors' attention starting from the customers' satisfaction, analysing the fundamental

internal and external aspects of your business, in a quick way and without a big effort.

The four steps are sequenced in the following cycle (Figure 5).

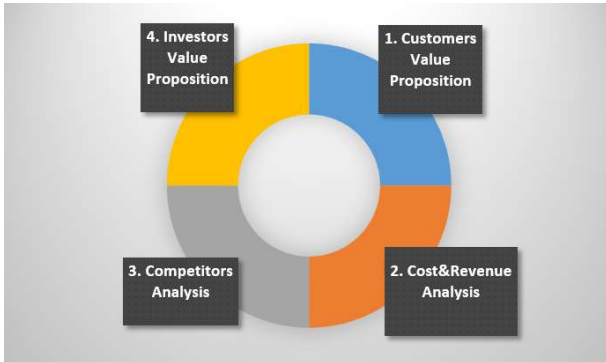


Fig. 5. LCS Cycle

The LSC cycle can be considered a revision of the traditional PDCA cycle. We start from Customers needs and arrive to Investors needs, through internal and external considerations (Company and Competitors).

The main advantages of the developed approach are:

- The focus of the main stakeholders: customers and investors, in order to satisfy their needs;
- An optimization of resources, obtaining a more streamlined model.

The main disadvantage of this model, as well as for the Lean Startup methodology, is a lower robustness of the study, that increase the level of risk for potential investors. Consequently, time is the key factor: less time to decide and act means less risk of failure. Therefore, according to the lean philosophy, we have to reduce the lead time, in other words: the decision time.

IV. CASE STUDY

In this section, Lean Start Canvas is applied to a real case study in the field of renewable energies. The scope is the industrialization and commercialization of a gasification system, small size of 4kWe, powered by biomass. The gasifier "produces" a synthesis gas to power a co-generator for the production of thermal and electrical energy [17].

A. Customers Value Proposition

According to the proposed approach, the starting and central point is the value proposition identification for potential customers. Even if there are different types of potential clients interested in a small gasification system (single families; companies of lumberjacks etc.), the most important are surely farms, whose value proposition is linked to:

1. the reduction of high electricity consumption;
2. the recovery of availability agricultural waste.

Therefore, the farms present in the Lazio region are considered and divided by cultivation area in the figure n. 6.

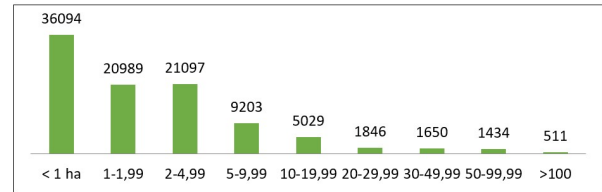


Fig. 6. Number of farms by cultivation area in the Lazio region (source: ISTAT – National Institute of Statistics)

Initially, according to the size of the considered gasification system, only farms bigger than 10 hectares minimum are considered, 10470 of 97853 (about 10% of the total number). On the basis of the type of cultivation, considering only arable plants with a high rate of recoverability, the final number of potential customers is equal to 4207 (Table III, assumptions: average waste=1,37 t/ha per year; average LCV=17,94 MJ/kg).

TABLE III
POTENTIAL CUSTOMERS DATA

[ha]	n° of farms	Biomass [t/year]	Energy [GJ/year]
10-19.99*	2124	13,7	246
20-29.99**	780	27,4	492
30-49.99	697	41,1	737
50-99.99	606	68,5	1229
>100	216	137	2458

waste could be *not enough or **necessary an integration

B. Cost&Revenue Analysis

The second step is a general analysis of economic aspects, cost and revenue (Tables IV; V: VI)

TABLE IV
FIXED COSTS

Gasification System*	1200 €
Assurance	100 €
Worker	1000 €
Administration	100 €
Fuel	100 €
TOTAL	2500 €

*Depreciation in ten years

TABLE V
VARIABLE COSTS

Biomass	0,01 €/kWh
Maintenance	0,034 €/kWh
Residual disposal	0,028 €/kWh
TOTAL	0,072 €/kWh

TABLE VI
REVENUES

Electrical energy price/saving	0,22 €/kWh _e
Thermal energy price/saving	0,1344 €/kWh _t

Subsequently, Break Even Point is evaluated: about 10000 kWh/year, corresponding to 2500 hours of function of the gasification system (Figure 7).

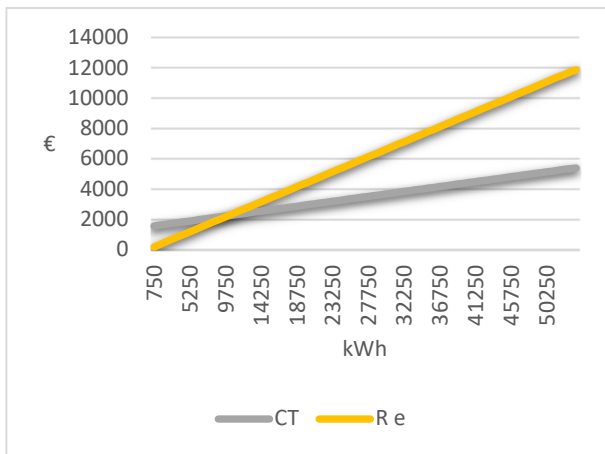


Fig. 7. BEP analysis

C. Competitors Analysis

Then, it is necessary to analyze competitors and their value propositions. Thanks to a SWOT analysis many players were analyzed, but only seven competitors in the market can be considered comparable, with gasification systems smaller than 20 kWe (Table VII).

TABLE VII
COMPETITORS ANALYSIS

Company	Minimum Size	Country
All Power Labs	From 15 kWe	USA
Ankur	From 9 kWe	India
Betel	From 19 kWe	India
Gasification Australia	From 15 kWe	Australia

Innovation Technology Ireland Ltd	From 15 kWe	North Ireland
Spanner	From 9 kWe	Germania
CPG	From 20 kWe	India

In particular, only two competitors supply systems with a size of 9 kWe: Ankur and Spanner; even if the size is more than double in comparison to the considered gasification system of 4 kWe.

D. Investors Value Proposition

In the final step, the value proposition for potential investors is considered. Two different opportunities are possible:

- To produce energy only for auto-consumption by producer companies (>20 ha)
- To produce energy also for selling to other companies (in theory all)

In the first case, considering the previous BPE analysis, the referring market is composed only by companies with higher energy consumptions (more than 10000 kWh) (Figure 8).

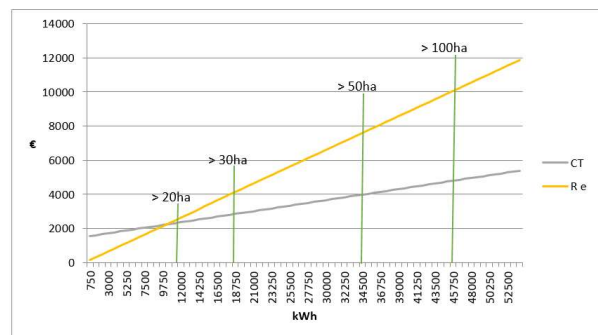


Fig. 8. Company energy consumption by size

Instead, in the second case, also other smaller companies can be considered, opportunely aggregated together if necessary, making bigger the potential market and the business more interesting for potential investors (Table VIII).

TABLE VIII
TOTAL MARKET

[ha]*	energy consumption per farm [kWh/year]**	n° of farms
< 1 ha	229	15244
1-1,99	686	8864
2-4,99	1143	8910

5-9,99	2286	3887
10-19,99	4572	2124
20-29,99	11431	780
30-49,99	18290	697
50-99,99	34294	606
>100	45725	216

*ha: hectare; **Source: Terna

V. CONCLUSIONS

Starting from the study and comparison of the well-known Business Models: Business Model Canvas by Alexander Osterwalder; Lean Startup by Eric Rise and Lean Canvas by Ash Maurya, a new one has been developed, focusing on the common characteristics. The proposed approach, Lean Start Canvas - LSC, focuses on the “value proposition” for the main stakeholders. It allows analyzing some fundamental aspects of your business, the cost and revenue structure together with the competitors benchmarking.

The four steps to follow in sequence are:

1. Customers Value Proposition
2. Cost&Revenue Analysis
3. Competitors Analysis
4. Investors Value Proposition

Summarizing, the goal of the proposed business model is to grab the investors’ attention starting from the customers’ satisfaction, analysing the fundamental internal and external aspects of your business, in a quick way and without a big effort.

The above four steps were applied to a real case study in the field of renewable energies: the industrialization and commercialization of a small gasification system powered by biomass to produce energy for auto-consumption or selling by farms.

Thanks to the LSC application to a real case study, it was possible to understand the path to follow and the main points to highlight. The approach starts from the market and reaches the market, showing the potentiality of the business.

The core of Lean Start Canvas is the focus on “value proposition” from different points of view:

1. Customers;
2. Company;
3. Competitors;
4. Investors.

The goal is to show in an “agile” way, quickly and economically, the “*whole value proposition*” for all main actors of the considered business.

The Lean Start Canvas application to the case study allowed validating the proposed approach and verify its generality. In the future, applications also to Services will be realized.

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